We claim:

1. A method for activating HIF-1 mediated gene expression in a cell, comprising administering to said cell a composition comprising at least one 2-oxoacid selected from the group consisting of pyruvate, oxaloacetate, alpha-ketoisovalerate, alpha-ketoisocaproate, alpha-keto-beta-methylvalerate, methyl esters thereof, ethyl esters thereof and glycerol esters thereof.

2. The method as recited in claim 1, wherein said mammal is a human.

3. The method as recited in claim 1, wherein said HIF-1 mediated gene expression includes activation of expression of at least one gene selected from the group consisting of genes encoding vascular endothelial growth factor (VEGF), glucose transporter isoform 3 (Glut-3), aldolase A (aldo A) and erythropoietin.

4. The method as recited in claim 1, wherein said 2-oxoacid inhibits hydroxylation of HIF-1 in said cell.

5. The method as recited in claim 4, wherein said hydroxylation is mediated by a prolyl hydroxylase or an asparagine hydroxylase.

6. A method for inducing hypoxic adaptation in a mammal in need of such adaptation, comprising administering to said mammal a composition comprising at least one 2-oxoacid selected from the group consisting of pyruvate, oxaloacetate, alpha-ketoisovalerate, alpha-ketoisocaproate, alpha-keto-beta-methylvalerate, methyl esters thereof, ethyl esters thereof and glycerol esters thereof.

7. The method as recited in claim 6, wherein said mammal is a human.

8. The method of claim 6, wherein said human is at risk of heart attack, stroke or pregnancy-associated eclampsia.

9. The method of claim 7, wherein said human suffers from asthma, diabetes, epilepsy, anemia or cardiac arrythmias.

10. The method of claim 7, wherein said human has been exposed to high altitude or

smoke inhalation.

11. A method of promoting tissue neovascularization in a mammal comprising administering to said patient a composition comprising at least one 2-oxoacid selected from the group consisting of pyruvate, oxaloacetate, alpha-ketoisovalerate, alpha-ketoisocaproate, alpha-keto-beta-methylvalerate, methyl esters thereof, ethyl esters thereof and glycerol esters thereof.

12. The method of claim 11, wherein said mammal is a human.

13. The method of claim 12, wherein said human has a peripheral vascular disease selected from the group consisting of atherosclerosis, vasculitis, phlebitis and thrombosis.

14. The method of claim 12, wherein said human is in need of wound or burn healing.

15. The method of claim 14, wherein said composition is applied topically.

16. A method for accelerating the development of proper oxygen homeostasis in a fetus comprising administering to a pregnant human a composition comprising at least one 2-oxoacid selected from the group consisting of pyruvate, oxaloacetate, alpha-ketoisovalerate, alpha-ketoisocaproate, alpha-keto-beta-methylvalerate, methyl esters thereof, ethyl esters thereof and glycerol esters thereof.

17. The method of claim 16 where said pregnant human is at risk for premature delivery.

18. A method for protecting a mammal against radiation comprising administering to said mammal a composition comprising at least one 2-oxoacids selected from the group consisting of pyruvate, oxaloacetate, alpha-ketoisovalerate, alpha-ketoisocaproate, alpha-keto-beta-methylvalerate, methyl esters thereof, ethyl esters thereof, and glycerol esters thereof.

19. The method as recited in claim 18, wherein said composition is administered before exposure to radiation, during exposure to radiation or after exposure to radiation.

20. The method as recited in claim 19, wherein said composition is administered one hour after exposure to radiation.

21. The method as recited in claim 19, wherein said composition is administered four hours after exposure to radiation.

22. The method as recited in claim 19, wherein said composition is administered twenty-four hours after exposure to radiation.

23. The method as recited in claim 18, wherein said mammal is a human.

24. The method as recited in claims 1, 6, 11, 16, or 18, wherein said administering to said mammal of said composition is accomplished by at least one method selected from the group consisting of oral administration, mucosal administration, ocular administration, subcutaneous injection, transdermal administration, and combinations thereof.

25. The method as recited in claim 24, wherein said mucosal administration is selected from the group consisting of buccal, endotracheal, nasal, pharyngeal, rectal, sublingual, vaginal, and combinations thereof.

26. The method as recited in claim 24, wherein for said buccal, endotracheal, nasal, pharyngeal, sublingual, and combinations thereof administration, said composition is in a physical form selected from the group consisting of emulsion, gum, lozenge, spray, tablet and an inclusion complex.

27. The method of claim 26, wherein for said rectal and said vaginal administration, said composition is in a physical form selected from the group consisting of cream, douche, enema and suppository.

28. The method as recited in claim 24, wherein said composition for said nasal administration is selected from the group consisting of sniffing powder, and nasal spray.

29. The method as recited in claim 24, wherein said composition for said oral administration is selected from the group consisting of incorporation in food, incorporation into a dietary supplement, incorporation in a drink or powder to be mixed with water or other liquid, chewable tablet or capsule, swallowable tablet, capsule, caplet or softgel, Q-melt strip, bar, lozenge and gum.

30. The method as recited in claim 24, wherein said composition for said ocular administration is selected from suspension, solution and spray.

31. The method as recited in claim 24, wherein said composition for said subcutaneous administration is an incorporation in a pharmaceutically acceptable and injectable carrier.

32. The method as recited in claim 24, wherein said composition for transdermal administration is an incorporation into a lipophilic carrier with a physical form of a topical crème or a physical form of an adhesive patch.

33. The method as recited in claim 24, wherein said composition is administered repetitively with time intervals in the range of from about one hour to about forty-eight hours.